

t41_convex4
(TMUxc9asFpLxzFnJgKzETyRqH49VZxt32n2)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_clvect_1 : \iota \Rightarrow o$ be given. Let $m1_convex4 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k15_convex4 : \iota \Rightarrow \iota$ be given. Let $k1_rlvect_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_convex4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_convex4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_rlvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_convex4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $r1_struct_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_rlvect_1 : \iota \Rightarrow o$ be given. Let $l1_algstr_0 : \iota \Rightarrow o$ be given. Let $k1_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v3_rlvect_1 : \iota \Rightarrow o$ be given. Let $v4_rlvect_1 : \iota \Rightarrow o$ be given. Let $v2_clvect_1 : \iota \Rightarrow o$ be given. Let $v3_clvect_1 : \iota \Rightarrow o$ be given. Let $v4_clvect_1 : \iota \Rightarrow o$ be given. Let $v5_clvect_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_clvect_1 X0)) \Rightarrow (\forall X1. \\ & (m1_convex4 X1 X0) \Rightarrow (k4_algstr_0 (k15_convex4 X0) (k1_rlvect_2 \\ & (k15_convex4 X0) X1) = k8_convex4 X0 X1)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_clvect_1 X0)) \Rightarrow (\forall X1. \\ & (m1_convex4 X1 X0) \Rightarrow (\forall X2.(m1_convex4 X2 X0) \Rightarrow (k3_rlvect_1 \\ & (k15_convex4 X0) (k1_rlvect_2 (k15_convex4 X0) X1) (k1_rlvect_2 \\ & (k15_convex4 X0) X2) = k5_convex4 X0 X1 X2))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (r1_struct_0 X0 X1)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v2_rlvect_1 X0) \wedge (l1_algstr_0 \\ & X0)) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 \\ & X0)))) \Rightarrow (k3_rlvect_1 X0 X1 X2 = k1_algstr_0 X0 X1 X2) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0) \Rightarrow (l1_struct_0 X0) \quad (5)$$

Assume the following.

$$\forall X0.(l2_algstr_0 X0) \Rightarrow ((l2_struct_0 X0) \wedge (l1_algstr_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(l1_clvect_1 X0) \Rightarrow (l2_algstr_0 X0) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge (l1_clvect_1 X0)) \wedge (m1_convex4 X1 X0)) \Rightarrow (m1_convex4 (k8_convex4 X0 X1) X0) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((l2_algstr_0 X0) \wedge (m1_subset_1 X1 (u1_struct_0 X0))) \Rightarrow (m1_subset_1 (k4_algstr_0 X0 X1) (u1_struct_0 X0)) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.(l1_struct_0 X0) \Rightarrow (m1_subset_1 (k1_rlvect_2 X0 X1) (u1_struct_0 X0)) \quad (10)$$

Assume the following.

$$\forall X0.(((\neg v2_struct_0 X0) \wedge (l1_clvect_1 X0)) \Rightarrow (((\neg v2_struct_0 (k15_convex4 X0)) \wedge ((v13_algstr_0 (k15_convex4 X0)) \wedge ((v2_rlvect_1 (k15_convex4 X0)) \wedge ((v3_rlvect_1 (k15_convex4 X0)) \wedge ((v4_rlvect_1 (k15_convex4 X0)) \wedge ((v2_clvect_1 (k15_convex4 X0)) \wedge ((v3_clvect_1 (k15_convex4 X0)) \wedge ((v4_clvect_1 (k15_convex4 X0)) \wedge ((v5_clvect_1 (k15_convex4 X0)) \wedge (l1_clvect_1 (k15_convex4 X0)))))))))))))) \quad (11)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0) \Rightarrow (\forall X1.(r1_struct_0 X0 X1) \Rightarrow (k1_rlvect_2 X0 X1 = X1)) \quad (12)$$

Assume the following.

$$\forall X0.(l2_algstr_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k5_algstr_0 X0 X1 X2 = k1_algstr_0 X0 X1 (k4_algstr_0 X0 X2)))) \quad (13)$$

Assume the following.

$$\forall X0.(((\neg v2_struct_0 X0) \wedge (l1_clvect_1 X0)) \Rightarrow (\forall X1.(m1_convex4 X1 X0) \Rightarrow (\forall X2.(m1_convex4 X2 X0) \Rightarrow (k9_convex4 X0 X1 X2 = k5_convex4 X0 X1 (k8_convex4 X0 X2)))) \quad (14)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_clvect_1 X0)) \Rightarrow (\forall X1. \\ & (m1_convex4 X1 X0) \Rightarrow (\forall X2.(m1_convex4 X2 X0) \Rightarrow (k5_algstr_0 \\ & (k15_convex4 X0) (k1_rlvect_2 (k15_convex4 X0) X1) (k1_rlvect_2 \\ & (k15_convex4 X0) X2) = k9_convex4 X0 X1 X2))) \end{aligned}$$